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BLOKHINTSEV, D. I.

"The Quantization of an Essentially Nonlinear Field"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 4, No 2, Aug 70, pp 145-152

Abstract: An "essentially nonlinear field" is defined as a field obeying the equation

$$A\varphi_{tt} + 2B\varphi_{tx} + C\varphi_{xx} = 0,$$

with curved characteristics which depend on the field itself or its derivatives. The article considers the simplest example of the quan-

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BLOKHINTSEV, D. I., Teoreticheskaya i Matematicheskaya Fizika, Vol 4, No 2, Aug 70, pp 145-152

tization of an essentially nonlinear system with one degree of freedom, described by the Lagrangian

$$\mathcal{L} = \mathcal{L}(\hat{\mathcal{H}}), \quad \hat{\mathcal{H}} = \frac{1}{2}\hat{p}^2 - U(q).$$

It is shown that the most suitable representation for solving the problem is one in which the operator $\hat{\mathcal{H}}$ is diagonal ("$\mathcal{H}$" representation) or another representation similar to it. A method of functional integration is then described for the quantization of an essentially nonlinear field of the Born-Infeld type, described by a Lagrangian of the type

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BLOKHINTSEV, D. I., Teoreticheskaya i Matematicheskaya Fizika, Vol 4, No 2, Aug 70, pp 145-152

$$\mathcal{L} = \mathcal{L}(\mathcal{H}), \quad \mathcal{H} = \frac{1}{2}\,(\varphi_t{}^2 - \varphi_x{}^2).$$

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1/2   023   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--OPERATION EXPERIENCE AND DEVELOPMENT OF PERIODICALLY PULSED
   REACTORS AT DUBNA -U-

AUTHOR-(03)-ANANYEV, V.D., BLOKHINTSEV, D.I., BUNIN, B.N.

COUNTRY OF INFO--USSR

SOURCE--CONF-690102, PP 173-95

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--FAST REACTOR, NUCLEAR REACTOR OPERATION, RESEARCH REACTOR,
   NUCLEAR PHYSICS INSTITUTE/(U)IBR FAST NEUTRON PULSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1762   STEP NO--UR/0000/70/000/000/0173/0195

CIRC ACCESSION NO--AT0054600
                         UNCLASSIFIED

CIRC ACCESSION NO--AT0054600

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NUMBER OF DESIGN IMPROVEMENTS
MADE ON THE IBR ON THE BASIS OF OPERATIONAL EXPERIENCE ARE DESCRIBED.
SOME PECULIARITIES OF THE REACTOR UNDER OPERATING CONDITIONS OF
INFREQUENT PULSES ARE GIVEN ALONG WITH A SHORT DESCRIPTION AND THE MAIN
PARAMETERS OF THE HIGH POWER PERIODICALLY PULSED REACTOR IBR-2 WITH AN
LIU-30 AS AN INJECTOR.   SOME MAJOR EXPERIMENTAL WORKS ON NUCLEAR
PHYSICS AND SOLID STATE PHYSICS PEROFRMED USING THE IBR ARE DISCUSSED.
34 REFERENCES.   FACILITY: JOINT INST. FOR NUCLEAR RESEARCH,
DUBNA USSR.

UNCLASSIFIED

1/2   011   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--SPACE AND TIME IN MICROCOSM, PROSTRANSTVO I VREMYA V MIKROMIRE -U-

AUTHOR--BLOKHINTSEV, D.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, NAUKA, 1970, 359 PP

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MONOGRAPH, SPACE TIME, ELEMENTARY PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0669   STEP NO--UR/0000/70/000/000/0001/0359

CIRC ACCESSION NO--AM0137753
                         UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS. PREFACE 5.
INTRODUCTION 7. CHAPTER I GEOMETRIC MEASUREMENTS IN MICROCOSM 9. II
GEOMETRIC MEASUREMENTS IN MICROCOSM 55. III GEOMETRIC MEASUREMENTS
IN MICROCOSM IN THE RELATIVISTIC CASE 82. IV ROLE OF FINITE
DIMENSIONS OF ELEMENTARY PARTICLES 110. V CAUSALITY IN QUANTUM THEORY
141. VI MICROSCOPIC CAUSALITY 192. VII GENERALIZATION OF CAUSAL
RELATIONSHIP AND GEOMETRY 247. VIII PROBLEMS OF EXPERIMENTS 296.
SUPPLEMENT 311. BIBLIOGRAPHY 355. THE MONOGRAPH DEALS WITH A
CRITICAL ANALYSIS OF A SPACE TIME DESCRIPTION OF THE WORLD OF ELEMENTARY
PARTICLES. IN THE AUTHOR'S OPINION THE DIFFICULTIES OF THE CONTEMPORARY
THEORY ARE CONNECTED WITH INCORRECT GEOMETRICAL REPRESENTATIONS IN
DESCRIPTION OF THE INTERACTION OF ELEMENTARY PARTICLES AT SMALL
DISTANCES. THE BOOK CONTAINS A DETAILED ANALYSIS OF THESE DIFFICULTIES
AND A DISCUSSION OF SEVERAL NEW TRENDS CONNECTED WITH VARIOUS
MODIFICATIONS OF TIME SPACE RELATIONSHIPS. THE BOOK WAS WRITTEN FOR
STUDENTS, POST GRADUATE STUDENTS AND SCIENTISTS WORKING IN THEORETICAL
PHYSICS.

TITLE--SPECTRAL REPRESENTATION OF THE TWO POINT FUNCTION FOR THE FIELDS
   DESCRIBING COMPOSITE PARTICLES -U-

AUTHOR-(02)-BLOKHINTSEV, D.I., ZAYKOV, R.P.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2, PP
   166-170
DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--FUNCTION, LORENTZ TRANSFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0327   STEP NO--UR/0646/70/003/002/0166/0170

CIRC ACCESSION NO--AP0129559
                       UNCLASSIFIED

CIRC ACCESSION NO--AP0129559

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH THE AID OF THE GELFAND-GRAEV
TRANSFORMATION THE EXPANSION IS OBTAINED OF THE FOUR POINT FUNCTION OF
THE SCALAR FIELD (OR, EQUIVALENTLY, OF THE TWO POINT FUNCTION OF THE
BILOCAL FIELD) OVER TWO POINT FUNCTIONS OF THE FIELDS TRANSFORMING UNDER
PRINCIPAL SERIE OF UNITARY REPRESENTATIONS OF THE LORENTZY GROUP AND
CONVERSELY. IT FOLLOWS FROM THIS RESULT THAT THE INFINITE COMPONENT
FIELDS CAN BE CONSIDERED AS COMPOSITE ONES.   FACILITY:
OB'YEDINENNYY INSTITUT YADERKYKH ISSLEDOVANIY.

UNCLASSIFIED

1/2   015   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--PRESENT STATUS OF NONLOCAL AND UNRENORMALIZABLE FIELD THEORY -U-

AUTHOR--BLOKHINTSEV, D.I.

COUNTRY OF INFO--USSR

SOURCE--(JINR P2 4941) LAB. OF THEORETICAL PHYSICS. 1970. 20P. DEP. CFSTI

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FIELD THEORY, THEORETIC PHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0163   STEP NO--UR/0000/70/000/000/0020/0020

CIRC ACCESSION NO--AT0127787
                         UNCLASSIFIED

CIRC ACCESSION NO--AT0127787
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRESENT STATUS OF NONLOCAL AND
  UNRENORMALIZABLE FIELD THEORY IS REVIEWED IN GENERAL ON THE BASIS OF THE
  WORKS CARRIED OUT AT THE LABORATORY OF THEORETICAL PHYSICS.
  FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

UNCLASSIFIED

USSR   UDC 531.781.2+536.5:658.62.011.56

BEKLEMISHCHEV, A. I., BLOKIN-MECHTALIN, YU. K., BRENNERMAN, V. M., KUZNETSOV,
A. A., LEBEDEVA, A. I., SHARIY, K. A.

"Information Measuring System for Automating Deformation and Temperature
Measurements in Testing Structures for Strength"

V sb. Ustroystva i elementy sistem avtomatiz. nauch. eksperimentov (Devices and
Elements of Automation Systems for Scientific Experiments -- Collection of
Works), Novosibirsk, "Nauka", 1970, pp 169-172 (from Referativnyy Zhurnal,
Metrologiya i izmeritel'naya tekhnika, No 11, Nov 71, Abstract No 11.32.145)

Translation: The system includes a digital measuring device, a device for
transducer commutation, a centralized computer system and a device for contact
with the object. The basic characteristics of the system are: number of
transducers connected 2500 (2000 tensometers and 500 thermocouples); range of
measuring deformation $\pm 1 \cdot 10^{-5}$ - $\pm 0.5 \cdot 10^{-2}$ relative units; temperature measure-
ment range 0-375°C, 0-750°C and 0-1250°C; the size of the scale of the measur-
ing device is 1000 units; rate of interrogation is 30 transducers per second
for each of the channels; the reduced maximum error (without considering trans-
ducer error) is 1%; length of measurement distance is up to 150 m.

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USSR   UDC 631.531.1;537.212;577.37

IZAKOV, F. Ya., NECHAYEV, V. I., and BLONSKAYA, A. P.

"Investigation of the Mechanism of Action of Electrical Field on Seeds"

Kishinev, Elektronnaya Obrabotka Materialov, No 2, 1970, pp 70-75

Translation: It was established that the result of seed treatment in an elec-
trical field depends on the field strength and also on the magnitude and sign
of charge. The effect of the electrical field can be explained by the joint
influence of field strength and of charges acquired by the seed, which pro-
bably produces change in the biopotential of the cell and formation of com-
plexes with charge transfer. A hypothesis is introduced which explains the
positive effect of the action of negative nitrogen ions on seeds. It was dis-
covered that the effect of an electrical field on seeds is analogous to the
effect of gamma rays and other electrophysical methods. However, unlike these
methods, the process of treatment of seeds with electrical field takes place
with small losses of energy and does not lead to formation of free radicals.
Presowing treatment of seeds in an electrical field is recommended.

1/1

USSR

UDC 536.46:533.6

BLOSHENKO, V. N., MERZHANOV, A. G., PEREGUDOV, M. I., KHAYKIN, B. I.

"Toward a Theory of the Gas-Phase Combustion of a Drop"

Translation: The gas-phase combustion of a drop of liquid fuel close to cri-
tical conditions is considered on the basis of the inertia of the gas medium,
and the validity of substituting the equations of multicomponent diffusion
for the equations of independent diffusion ordinarily used is also analyzed.
A computer solution to the problem is given. It is shown that it is impossible
to neglect the inertia of the gas medium in problems concerning the combustion
of a droplet and also that the drop is completely evaporated under critical
conditions at the moment of combustion, and that the combustion picture at
small distances from the limit considerably depend on the magnitude of the
total pressure in the gas phase (or in the evaporation intensity which is
defined as the evaporation intensity in the absence of chemical reaction).

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USSR

BLOSHENKO, V. N., et al, Goreniye i vzryv, Moscow, "Nauka", 1972, pp 227-233

It is shown that the multicomponent property of the gas medium has a considerable effect on the combustion process. 14 ref. Authors' abstract.

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USSR   UDC 629.7.036.536.46

BLOSHENKO, V. N., MERZHANOV, A. G., PEREGUDOV, N. I., and KHAYKIN, B. I.

"Formation of an Unsteady Diffusive Combustion Front During the Ignition of
a Drop of Liquid Fuel"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki
Dispersn. Sistem, 1972--Sbornik(11th All-Union Conference on Problems of the
Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--Collec-
tion of Articles), 1972, pp 42-43 (from Referativnyy Zhurnal--Aviatsionnyye i
Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.11. Resume)

Translation: A theoretical investigation is conducted of the process of the
formation of an unsteady diffusive combustion front during the ignition of a
quiescent drop of evaporating liquid fuel in an inorganic gaseous atmosphere
containing an oxidant. The investigation was conducted for a thermal ignition
mechanism and transition from ignition to unsteady diffusive combustion.
During the analysis, account was taken of the unsteadiness of the process of
heat and mass exchange in the gas medium. It was established that on the
basis of the nature of the process taking place, the transition from ignition
to unsteady diffusive combustion may be represented as an aggregate of the
successive stages: formation of an unsteady diffusive combustion front --
unsteady diffusive combustion.
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USSR   UDC 635.21+632.3

AMBROSAW, A. L., and BLOTSKAYA, Zh. V.

"Results of Study of the Resistance of Various Potato Strains to Y Virus"

Minsk, Izvestiya Akademii Nauk BSSR, No 4, 1971, pp 43-45

Translation: The resistance of various potato strains to spontaneous or
experimental infection with Y virus was investigated and results were
analyzed.

The Minskiy ranniy, Belorusskiy krakhmalistyy, Agronomicheskiy, and Temp
strains are most susceptible to this virus: 60-80% of these potatoes were
diseased according to serodiagnosis, and 10-30% according to external
manifestations. The Loshitskiy, Kandidat, Pavlinka, Ogonok, Lavonikha,
and Akkord strains are most resistant to Y virus: 10-40% of the specimens
were diseased according to serodiagnosis. These strains have no external
manifestations of the disease, that is, they are latent carriers of Y
virus.

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USSR

UDC: 681.3

BLUDOV, V. S.

"Some Problems in Synthesis of Digital Automata From Elements of the NOR and AND-NOT Type, and a Delay Element With Respect to a Cost Criterion"

V sb. Kibernet. tekhnika. Vyp. 3 (Cybernetic Technology--collection of works, No 3), Kiev, 1970, pp 26-39 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V683)

Translation: The author considers the problem of structural synthesis of digital automata from elements of the NOR and AND-NOT types and a delay element. The criterion for optimization of the automaton circuit is the overall cost of elements L:

$$L = N_1 + a N_2 + \beta N_3.$$

where N_1 is the number of elements of the NOR type, N_2 is the number of elements of the AND-NOT type, N_3 is the number of elements of the delay type, a is the cost of an element of the AND-NOT type taken relative to the cost of an element of the NOR type, and β is the cost of an element

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BLUDOV, V. S., Kibernet. tekhnika. Vyp. 3, Kiev, 1970, pp 26-39

of the delay type taken relative to the cost of an element of the NOR
type.
    A method based on this criterion is outlined for synthesizing an
optimum digital automaton circuit assuming that a minimized table of
transitions and a table of outputs are given, as well as a system for
coding input and output signals and the internal states of the automaton
and the system of above-mentioned elements. V. Mikheyev.

USSR   UDC 615.217.4.015

KUZ'MITSKIY, B. B., AKHREM, A. A., UKHOVA, L. I., MAROCHKIN, A. P., and
BLUDOVA, G. V., Minsk Medical Institute and Institute of Physical and Organic
Chemistry, Academy of Sciences, Belorussian SSR

"Pharmacological Properties of Stereoisomeric 4-Vinylethynyl- and 4-Butyl-
Substituted Decahydro-4-quinololes"

Abstract: The spectrum of neurotropic activity of several new decahydroquinoline
derivatives (2-methyl- and 1,2-dimethyl-4-vinylethynyldecahydroquinololes-4 and
2-methyl- and 1,2-dimethyl-4-butyldecahydroquinololes-4) was studied in experi-
ments on mice, rats, and cats. The compounds were found to have ganglion-
blocking and antinicotinic activity. They inhibited the transmission of excita-
tion mainly in the parasympathetic ganglia of the heart, had little effect on
the superior cervical ganglion, and did not significantly alter the sensitivity
of the M-cholinoreceptors or noncholinergic neurons. The ganglion-blocking and
antinicotinic activity of the compounds varies with their chemical and spatial
structure. Large doses intensify the central action of amphetamine sulfate,
prolonging stereotypic movements in the rat. The 2a4e isomer, a tertiary amino
alcohol, is the most active. There is no correlation between N-choline-blocking
activity and toxicity when the configuration of the compounds is changed.
1/1

USSR

MOZGOVOY, Ye. N., BLUM, E. Ya., TSEBERS, A. O.

"Flow of a Ferromagnetic Fluid in Thin Capillaries"

Translation: Results are presented from an experimental study of the effective viscosity of a ferrosuspension (iron particles measuring about 30 A in toluene) in a capillary viscosimeter (tube diameter 0.4-1.2 mm), placed in a homogeneous magnetic field, perpendicular to the flow. The magnetic field causes an increase in the measured effective viscosity as a function of particle concentration; the curves of increasing viscosity become saturated with fields on the order of 0.2 wb/m^2. In fields greater than 0.4 wb/m^2, a viscosity decrease is observed, caused by precipitation of the metal.

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FEDIN, A. G. and BLUM, E. Ya.

"Laser Interferometer for Investigating Boundary Layers in Liquids"

Abstract: The relatively inexpensive and simply adjusted types of interferometer known as diffraction shadow interferometers (DSI) have recently come into wide use. Using them with lasers has extended laser techniques even further, especially when a point source of monochromatic light is at the focus of the DSI collimator and opaque lines on glass are placed at the focus of the receiving portion. The possibilities in the use of such laser interferometer systems for investigating thermal and diffusion boundary layers in liquids are explained in this paper using the IAB-451 type of DSI as the basis of the system under discussion. A diagram of the system is presented. Observation of the interference pattern and a few simple calculations have shown that deviation angles of the light beams measuring no more than 36' are best for investigating most gas dynamic processes. The advantages of using a laser as the light source in DSIs are discussed, and interference pattern photographs are reproduced.
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USSR   UDC: 532.57+532.137+536.51+532.14.08+531.787

FEDIN, A. G., et al, _Izvestiya Akademii nauk Latviyskoy SSR — Seriya fizicheskikh i tekhnicheskikh nauk_, No 5, 1972, pp 77-84

Comparison of the theoretical and experimental results found in this paper shows that, used with the laser, the IAB451 type of DSI can be successfully used for quantitative research of boundary layers in liquids.

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Refractory Materials

USSR

UDC 666.76:620.1

BLUVSHTEYN, M. N., (deceased), ZYKOVA, Z. K. (All-Union Institute of
Refractories), DAUKNIS, V. A., PERAS, A. Ya., YURENAS, V. L., YANULYAVICYUS,
A. I. (Institute for Physical and Technical Problems of Power Engineering,
Academy of Sciences Lithuanian SSR), and RABINOVICH, M. A. (Snigirevskiy
Plant of Refractory Articles)

"Strength of Ultralight-Weight Refractories"

Abstract: The Institute for Physical and Technical Problems, Academy of
Sciences Lithuanian SSR has designed, built, and adapted for practical
application an LV-1 set-up for testing the tensile, compressive, and bending
strength of ultralight-weight refractories at temperatures up to 1200°C. A
BV-662 inductance pickup is used for both measuring and recording the
deformation values for the latter two types of stress tests. The test
materials were ShLB-0,4 and ShLB-0,6 ultralight-weight refractory bricks.
Curves are shown to illustrate the strength values of the bricks as a
function of temperature and apparent density. There is only a slight
variance in strength values up to 700-800°C. At 900°C there is a marked
increase in strength for all types of load tests. At 1000-1100°C and higher
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USSR
BLUVSHTEYN, M. N., et al, Ogneupory, No 2, June 72, pp 43-47

the refractories begin to soften and change to viscoelastic state. The
strength drops with an increase in temperature. (7 illustrations, 7 biblio-
graphic references)

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USSR

UDC: 51:621.391

BLUVBAND, Z. M., SHEVTSOV, G. A.

"Influence of the Properties of an Information Receiver on Some Characteristics of a Communications System"

Otbor i peredacha inform. Resp. mezhved. sb. (Data Collection and Transmission. Republic Interdepartmental Collection), 1972, vyp. 34, pp 23-26 (from RZh-Kibernetika, No 5, May 73, abstract No 5V580 by Yu. Lin'kov)

Translation: The paper introduces the concept of the average quantity of information of use to an addressee, which in a special case is the conventional indefiniteness of a system X. In a similar way the authors generalize the concept of average conditional indefiniteness of a system X under condition that the state of an observed system Y is known. The difference between the introduced indeterminacies is called the quantity of information for the given addressee.

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BLUZMANAS, E.I.

medicine

- VOYENNO-MEDITSINSKIY ZHURNAL, No. 4, 1970, pp. 45-47

DIRECT BLOOD TRANSFUSIONS IN THE COMPLEX THERAPY
OF ULCER DISEASE OF THE STOMACH AND THE DUODENUM

by

Ye. T. Rudingovskiy, Honored Physician of the Uzbeck SSR,
Cand. Med. Sci., Colonel of Med. Serv.,
Ye. I. Bluzmanas, Lt. Col. of Med. Serv.

(CONTD) blood transfusions occupy an important place. Hemotrans-
fusion stimulates reparative processes, makes up lacking proteins
and amino acids in the organism, [illegible]

Clinical observations and experimental research of recent
years indicate that the therapeutic effect of blood, transfused
by the direct transfusion method is more effective than trans-
fusion of preserved blood [illegible]

Since 1966 we have been using direct blood transfusion in
the complex therapy of GDUD. [illegible]

All patients observed bed regime in the first ten days of
treatment, and received Diet No. 1b [illegible]
general regime. Simultaneously for the first 10-15 days atropine

J-P768

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drops in the usual doses (35 persons) or vitamin (51) were prescribed. All patients received alkalizing agents and physiotherapeutic procedures. In this period, after every 6-7 days, direct blood transfusion was given to 30 patients twice, to 41 three times, and to 24 four times. At one intake, usually 150 to 250 ml blood of identical group was transfused. Only four patients received a foreign-group blood (first group). At evaluation of the effectiveness of the performed therapy, attention was paid to the general condition of the patient, the character of the pathological syndrome, the intensity of dyspeptic disorders, the evolution of x-ray findings and of the patient's weight, the amount of total protein and of protein fraction in the blood, and to the indices of the oxygelagram.

In the majority of patients, already after the first transfusion, the general feeling improved considerably, the aches and dyspeptic disturbances ceased entirely or they diminished. Thus, by the 10th-15th day of treatment, after 2-3 direct blood transfusions, in 79 patients the pains and dyspeptic disturbances were stopped, and by the 25th day in 68 patients full subjective comfort was noted. Only in 8 who had associated perivisceritis and pathological changes in the liver and biliary pathways did the dyspeptic symptoms remain for a longer time. [...] Bogoar' and co-authors A.I. Gurshaya and others (Minsk, 1966) remarked that approximately in one third of the patients with chronic ulcer disease, the liver, pancreas, and other organs are involved in the process, on account of which the period of recovery is considerably stretched out.

It is well known that at the evaluation of the effectiveness of some therapeutic method of ulcer disease one of the most objective criteria is the time of ulcer healing. According to the findings of S.M. Ryss (1966), in half of the cases chronic ulcers of the stomach and duodenum are inclined to heal in 24-42 days. Particularly (1962) thinks that reparation of an acute ulcer lasts from a few weeks to a few months. N.S. Smirnov (1944) established with a gastroscope that initial signs of ulcer healing are already found after 10 days of treatment, and approximately after 30 days it is fully healed. P.I. Scholes' (1969) analyzed the findings of repeated radioscopies of the GI tract of young service-men who had the generally approved methods of treatment and he found that cicatrization of the ulcer starts on the 24th to 25th day and lasts until the 40th to 45th day.

For objective evaluation of the time of reparation, we compared the findings of repeated roentgenological examinations of two groups of patients. In all patients the niche was detected at the first radioscopy. Persons of the first group (91 men) received direct blood transfusion, those of the second (72 men) did not have hemotransfusion. The patients' age, the clinical symptoms of the disease, and also the performed other treatment was identical in both groups. The second roentgenological examinations were made on the 21st - 25th day of treatment. The obtained results are shown in Table 1.

Table 1

Group of patients	Number of patients	Results of the second roentgenological examination			
		no evident niche (full repair)	niche con-siderably smaller in size	niche con-siderably smaller in dimension	niche of original dimension
First	91	76	13		2
Second	72	36	10		26

USSR

RYAZANTSEV, V. I., PUGACHEV, A. I., SMIRNOVA, Ye. I., BLYABLIN, A. A.,
KUDISHINA, T. A., OSOKINA, T. N., Moscow, Svarochnoye Proizvodstvo
No 10, Oct 72, pp 8-10.

For welding wire in the Mg-Zn-Zr-Ce system, an increase in Ce content to
3.7% or more causes a sharp increase in diffusion penetration of this ele-
ment from the seam into the surrounding zone, significantly increasing
resistance to the formation of hot cracks (A $\geq$ 0.6 mm/min).

2/2

Welding

UDC 621.791.052:678-1:669.017.1.74

RYAZANTSEV, V. I., PUGACHEV, A. I., SMIRNOVA, Ye. I., BLYABLIN, A. A.,
KUDISHINA, T. A., and OSOKINA, T. N.

"Chemical Microheterogeneity of Welded Joints of VMD8 Magnesium Alloy"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 72, pp 8-10.

Abstract: The mechanism of formation of microchemical heterogeneity of
VMD8 alloy welded joints through the cross section is studied as a function
of the chemical composition of the welding wire. It is shown that the
degree of microchemical heterogeneity and the nature of its placement have
a decisive influence on the hot shortness of the joint metal. Microchemi-
cal heterogeneity in the fusion zone and in the near-seam zone arises as
a result of diffusion redistribution of elements from the seam into the
surrounding zone (Ce for 5-8 wire) and from the surrounding zone into the
seam (Zn for type 5-7 wire), as well as diffusion enrichment of melted
boundaries with such elements as Ce and impoverishment of the grain areas
near the boundary in these elements. It is established that when welding
is performed with wires in the system Mg-Al-Zn-Mn, the distribution of
alloying elements in the fusion zone is such that no change in the compo-
sition of the wire can cause a reduction in hot shortness (A = 0.3 mm/min).

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USSR

BLYABLIN, A. A.

UDC 669.721.018.26

"Deformable Magnesium Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 176-181, resume

Translation: Brief characteristics of magnesium alloys investigated by S. M. Voronov are presented. Data are given on modern Soviet, American and British magnesium alloys. The equipment for the production of intermediate products in the USA is analyzed. Areas of application of magnesium alloys abroad are indicated. Five tables, seven bibliographic references.

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USSR

UDC 678.06-419.8:677.521/:678.643'42'5

DOOS, S. A., NIKOLAYEV, A. F., and BLYAKHAM, YE. M.

"Effect of Temperature on the Properties of New Epoxy-Fiberglass Plastics"

Moscow, Plasticheskiye Massy, No 11, Nov 70, pp 32-34

Abstract: The article presents the results of studied of thermal stability and thermomechanical properties of fiberglass-textolites based on self-setting epoxy resins containing methyl and dimethyl groups, and on these same resins hardened by resol phenol-formaldehyde resin. It was found that the maximum permissible temperatures for intermittent (short-period) use of unstressed fiberglass-textolites should not exceed 200-230°C. These plastics can be used continuously for 180 days or longer without deterioration of physical and mechanical properties at temperatures of up to 160°C. The optimum composition for use under stress at high temperatures is 60 parts by weight of epoxy resin based on dimethyl derivatives of diphenylolpropane, 40 parts by weight of bakelite lacquer, and 1.8 parts by weight of catalyst (salt of triethanolamine and p-toluenesulfo acid). This plastic is deformed to a lesser extent as the temperature is raised than are other compositions, and its softening point is higher.

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1/2   029
TITLE--TWO LAYER ROOFING MATERIAL -U-   UNCLASSIFIED β PROCESSING DATE--30OCT70

AUTHOR-(05)-DANTSIN, M.I., ARONOV, KH.I., CHERNIN, G.B., BLYAKHER, M.A.,
    SHTOFENMAKHER, B.M.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 260,880
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR, BIOLOGICAL
    AND MEDICAL SCIENCES
TOPIC TAGS--POLYVINYL CHLORIDE, CONSTRUCTION MATERIAL, INSULATING
    MATERIAL, MICROBIAL DEGRADATION, AMMONIUM COMPOUND, FLUORIDE, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0987
                                STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0119856
                        UNCLASSIFIED

CIRC ACCESSION NO--AA0119856   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE TITLE ROOFING MATERIAL
CONSISTS OF LINOLEUM WITH A POLY(VINYL CHLORIDE) FACING LAYER ON A HEAT
AND SOUND INSULATING BASE.   TO INCREASE THE DURABILITY, THE HEAT AND
SOUND INSULATING PROPERTIES, AND THE DECAY RESISTANCE OF THE LINOLEUM, A
COMPN. WAS PREPD. CONSISTING OF 60-70PERCENT REPROCESSED WOOL FIBERS,
30-40PERCENT SYNTHEITC FIBERS, AND 2PERCENT (NH SUB4) SUB2 SIF SUB6
BASED ON THE FIBER WT.   FACILITY: ALL UNION SCIENTIFIC RESEARCH
INSTITUTE OF NEW CONSTRUCTION MATERIALS.

UNCLASSIFIED

USSR

GORLUBEV, I. F., BERENSHTEYN, D. R., and BLYAKHMAN, E. A.

UDC 661.143:681.3

"Calculation of the Optimal Mixtures of Luminophors Using a Simplex Method"

Sb. nauch. tr. VNII lyuminoforov 1 osebo chist. veshchestv (Collection of Scientific Works from the All-Union Scientific Research Institute of Luminophors and Principles for Purifying These Compounds), Vyp 7, 1972, pp 33-39 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L169 by N. Sh.)

Translation: A method is given for a computer calculation of complex mixtures for luminescent lamps having an improved color index. An example is given of the composition of such a mixture of the luminescent compounds LTS-1, LG-3, $Sr_3(PO_4)_2$, Sn, L-25, LTS-2, L-42, L-35, L-14, L-3500, and L-6500. It was shown that using the computer significantly hastened the selection of the optimum mixture.

1/1

Luminescence

USSR

UDC 661.143.017

BLYAKHMAN, E. A., LAPIN, A. P.

"Determining the Reliability of Measuring the Stability of Electrophosphors When Aged in Strongly Polar Liquids"

Translation: The authors determine reliability when comparing measurements of the stability of electroluminescent compositions in strongly polar liquids and solid capacitors. It is shown that within a certain class of phosphors the proposed accelerated method has an accuracy of the order of 10% which is fully adequate for purposes of directed synthesis. Glycerin was used as the strongly polar liquid. The aging process was done at a frequency of 500 Hz. Computational formulas are given.

1/1

1/2   024
TITLE--HARDENING OF EPOXY RESINS -U-   UNCLASSIFIED   PROCESSING DATE--13NOV70

AUTHOR--BLYAKHMAN, YE.M.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 248,970
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL PATENT, EPOXY RESIN, DIELECTRIC PROPERTY, POLYESTER
   COMPOUND, AMINE, ACRYLATE, OLIGOMER, HARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1444   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128843
                        UNCLASSIFIED

CIRC ACCESSION NO--AA0128843   UNCLASSIFIED   PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EPOXY RESINS WERE HARDENED BY
POLY(AMINO ESTERS).   TO PREP. COMPSN. WHICH HARDEN WITHOUT AN EXTERNAL
HEAT SUPPLY WITH INSIGNIFICANT SHRINKAGE AND EXOTHERMAL EFFECTS TO GIVE
HIGH DIELEC. AND PHYSICOMECH. INDEXES, OLIGOMERIC ALIPHATIC POLYAMINO
ESTERS WITH A MOL. WT. GREATER THAN OR EQUAL TO 500 AND CONTG. GREATER
THAN OR EQUAL TO 2 PRIMARY AND GREATER THAN OR EQUAL TO 2 SECONDARY
AMINO GROUPS IN A MOL. WERE USED AS HARDENERS.   THESE POLY(AMNIO ESTERS)
WERE OBTAINED BY REACTING ALIPHATIC POLYAMINES WITH OLIGOESTER
METHACRYLATES OR OLIGOESTER METHACRYLATES CONTG. GREATER THAN OR EQUAL
TO 2 TERMINAL DOUBLE BONDS IN A MOL. AT 50-80DEGREES FOR 1-4HR.

UNCLASSIFIED

YANOVA, L. P., BLYSKOSH, G. S., CHIGISHOVA, A. M., TAUBMAN, A. B., CHALYKH,
A. Ye., and LUK'YANOVICH, V. M., Institute of Physical Chemistry, USSR Academy
of Sciences, Moscow

"Mechanical and Chemical Grafting of Polymers on the Surface of Ionic Crystals"

Abstract: It was previously established by several of the authors that grafting
of polymers on a crystal surface is not uniformly distributed, but appears at
localized centers. The present study was undertaken to determine the character
of this localization.

Vacuum-dried (3 hrs., elevated temperature) rock salt and calcite crystals
were submerged in a monomer, then split, to secure a fresh surface. Intensity
of electron emission was measured.

Electron microscope photographs confirmed the localization of polymer grafting;
length of stay in the monomer had no effect on the progress of grafting. It is
concluded that successful grafting is dependent not on the bond strength of the
ionic crystal, but rather on the formation of radicals and on the ionization of
defects and the rise of free electron emission, appearing at the time of splitting.
1/1
- 75 -

94391q   Interaction of a high-frequency discharge plasma with the surface of some dielectrics.   Akishin, A. I.; Blvudov, E. V.; Guzhova, S. K.; Isaev, L. N.; Solov'ev, G. G.; Titov, V. I. (USSR).   Zh. Prikl. Spektrosk. 1970, 12(1), 13-16 (Russ). An expt. was performed, imitating the effect of the ionic component of the upper atm. on some dielec. materials (satellite surfaces) present in a plasma of a high-frequency discharge. Optical properties, such as reflection and transmittance coeffs., of a series of dielec. materials were detd. in ionic plasmas of 5-10 eV energy.   The reflection coeffs. of dielecs. in the visible range decreased markedly due to interaction with O^+, N^+, H^+, or He^+. The effect of O^+ was the greatest.   HMJR

I B

1/1

4

USSR   UDC 669.14.018.29-414

GOL'DSHTEYN, M. I., BLYUM, E. E., GRIN', A. V., SELETKOV, A. I., LITVINENKO,
D. A., LEYKIN, I. M., RUDCHENKO, A. V., OREL, E. I., VAYNTRAUB, S. S.,
LOKTIONOV, P. Ya., LASHCHEV, V. Ya., MOSIOSHVILI, V. V., MIROSHNICHENKO,
S. I., and KONDRASHOV, M. M., Ural Scientific Research Institute of
Ferrous Metals, Central Scientific Research Institute of Ferrous Metallurgy
imeni I. P. Bardin, and Kommunarsk Metallurgical Plant

"Adoption of the Industrial Production of 15G2AF Sheet Steel"

Abstract: An investigation of the 15G2AF plate steel (10-25 mm), commer-
cially produced at the Kommunarsk Metallurgical Plant, revealed that
alloying of the manganous structural steel with nitrogen and vanadium
increases the strength and plasticity properties of the normalized rolled
steel. Normalizing of the metal effects a size reduction of the grain
(to 10-12), which assures a low (-100°C to -120°C) cold brittleness
threshold. The strength of the 15G2AF steel was found to be at least
60 kg/mm^2 and the yield stress at least 45 kg/mm^2. Use of 15G2AF steel
for welded structures decreased weight, in comparison with steel 10G2S1,
by 13.6%.
1/1

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1/2   014   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--INCREASE IN THE SENSITIVITY OF EXTRACTION AND FLUORIMETRIC ANALYSIS
   BY SUBSTITUTION OF THE ORGANIC REAGENT. 2. DETERMINATION OF TANTALUM
AUTHOR-(C3)-BLYUM, I.A., PRONKINA, T.G., SHUMOVA, T.I.

CCUNTRY OF INFC--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 511-14

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TANTALUM, METAL CHEMICAL ANALYSIS, DYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0467   STEP NO--UR/0075/70/025/003/0511/0514

CIRC ACCESSICN NO--AP0126219
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0126219
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HIGHLY SENSITIVE EXTN.
ABSURPTIOMETRIC AND EXTN FLUORIMETRIC METHODS FOR TA DETN. WITH BASIC
DYES COULD NOT BE UTILIZED IN THE ANAL. OF NATURAL SAMPLES DUE TO THE
CONTAMINATION OF THE ANALYZED SOLN. WITH B, WHICH IS PRESENT IN REAGENTS
AND GLASSWARE. THE EXTN. OF THE FLUOROBORATE OF THE DYE CREATES AN
ANAL. BACKGROUND, WHICH IS USUALLY EQUIV. TO GREATER THAN OR EQUAL TO
1-2 MUG TA SUB2 O SUB5. THE SUBSTITUTION OF BUTYLRHODAMINE S FOR THE
CATION OF THE EXTD. BRILLIAN GREEN FLUOROTANTALATE ELIMINATES
PRACTICALLY THE INTERFERENCE OF B OWING TO THE HIGH SEPN. FACTOR FOR TA
AND B DURING THIS PROCEDURE.   THE METHOD INCLUDES THE EXTN. CONCN. OF
TA AS BRILLIAN GREEN FLUOROTANTALATE, THE REPLACEMENT OF THE ASSOC.
CATION BY BUTYLRHODAMINE S AND MEASURING THE FLUORESCENCE OF THE EXT. AT
560 NM. THE SENSITIVITY OF THE DETN. IS (1-2) TIMES 10 PRIME
NEGATIVE5PERCENT TA IN ROCKS AND (1-2) TIMES 10 PRIME NEGATIVE4PERCENT
TA IN TI, ZR, AND MINERALS.   FACILITY: INST. MINERAL., GEOCHEM.
CRYSTALLOCHEM. RARE ELEM., MOSCOW, USSR.

UNCLASSIFIED

BLYUM, VIKTOR. A.

LASSR-TU

JPRS 55319
1 May 72

-77-

CHAIRMAN BLYUM REPORTS TO LATVIAN TRADE UNION CONGRESS

[Report on speech by Chairman of Latvian Trade Union Council V. A. Blyum; Riga, Sovetskaya Latviya, Russian, 28 January 1971, p 2]

Comrades! A little more than 4 years passed since the 6th Trade Union Congress of Soviet Latvia. This period in the life of our country was filled with events of great historical importance, among which the 24th Party Congress held a special place. The Congress summed up the vast creative work of the Communist Party and of the whole Soviet nation and developed the political line and the practical program for the forthcoming years, a program for the further development of communism in our country.

Our republic's workers successfully completed the Eighth Five-Year Plan. The assignments for the growth of the volumes of industrial and agricultural output, labor productivity, and the national income were overfulfilled. Major social measures were implemented in the republic, as well as throughout the country. A significant rise in the people's standard of living was attained. The real per-capita income increased.

The labor achievements in the Eighth Five-Year Plan created a firm basis for a successful solution of even more important, new tasks of communist development in 1971-1975. The new five-year plan is an important stage in the further advance of Soviet society on the path toward communism, in the establishment of its material and technical base, and in strengthening our country's economic and defensive power.

The successful fulfillment of the five-year plan for national economic development is determined to a decisive degree by an increase in the efficiency of public production in all its links and a steady growth of labor productivity on the basis of a wide application of scientific and technological achievement. The republic's five-year plan envisages measures in the area of technical progress, whose implementation will make it possible to greatly increase labor productivity in industry, agriculture, and construction. The entire increase in the industrial production of the current five-year plan will have to be ensured without an increase in the number of workers. In this connection, V. A. Blyum

BLYUMIN, V. I., MASEYEV, M. B.

"Experimental Studies of Propellers With a Rotating Duct"

Abstract: The principle in the interaction of a rotating duct with the propellor and the reason for the rise in thrust in it are said to be the same as in a fixed duct. It is claimed that a rotating duct does not have several of the disadvantages of a fixed duct but it does have a fundamental hydrodynamic shortcoming in the expenditure of additional power on overcoming forces of resistance caused by its rotation. Its diameter is ordinarily kept less than the diameter of the propellor to lower the power expenditures on rotation of the duct. The following conclusions were drawn from the study: high-load and low-revolution propellors with a shaped rotating duct are more advantageous as regards propulsion efficiency than propellers without a duct. A symmetric aviation profile of the NACA-0015 type should be used as a profile for the rotating duct. The optimal diameter of the duct is in the range $D_{duct} = 0.5-0.7 D$. The efficiency of a propellor-rotating duct unit can be raised by installing additional

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USSR

BLYUMIN, V. I., MASEYEV, M. B., Sudostroyeniye, No. 3, Mar 72, pp 8-12

external blades. The application of rotating ducts is called for when the installation of a fixed duct on the body of the vessel is impossible, or makes only a small improvement as, for example, for propellors located in a deep tunnel. In addition, a rotating annular duct raises the strength of the propellor blades, making it possible to use thin blades with higher efficiencies and better cavitation characteristics.

2/2

USSR

KOL'TOVER, V. K., and BLYUMENFEL'D, L. A., Institute of Chemical Physics,
USSR Academy of Sciences, Moscow

"Thermal Conformational Transitions in Electron-Carrying Biological
Membranes"

Abstract: ESR and fluorescence studies of spin labeled and 1-aniline-8-
naphthaline sulfonate (ANS) labeled biological membranes obtained from rat
liver microsomes, submitochondrial particles from bovine heart, and pea
chloroplasts showed that conformational transitions occurred at 20° and $40^{\circ}C$.
These transitions have been tentatively ascribed to second order transitions
in lipoprotein subunits of membranes, although structural changes in lipo-
protein water may also account for this. Definitive conclusions would require
calorimetric studies.

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1/2   033   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--PRODUCTS OF THE THERMAL DEGRADATION OF SOME POLYETHERS -U-

AUTHOR-(02)-BLYUMENFELD, A.B., KOVARSKAYA, B.M.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 633-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL DEGRADATION, POLYMER, ETHER, ACTIVATION ENERGY, FREE
   RADICAL, DIENE, CHEMICAL REACTION MECHANISM, METHYLENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0287   STEP NO--UR/0459/70/012/003/0633/0640

CIRC ACCESSION NO--AP0111481
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0111481
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE THERMAL DEGRADATION OF (-(CH
SUB2) SUB4O-) SUBN (I) GAVE CH SUB4, ETHANE, ETHYLENE, PROPANE,
PROPYLENE, BUTANE, ACH, ETCHO, PRCHO, TETRAHYDROFURAN, H, H SUB2 O,
BUOH, AND LARGER THAN OR EQUAL TO C SUB5 HYDROCARBONS. SIMILARLY, THE
DEGRADATION OF (-(CH SUB2) SUB6 O-) SUBN (II) GAVE SATD. AND C SUB2-6
UNSATD. HYDROCARBONS CONTG. C SUB1-6 ALDEHYDES, H, H SUB2 O, AND TRACES
OF HEXANONE. THE DECOMPN. OF POLYDIOXOLANE (III) GAVE MAINLY ETHYLENE,
ETHANE, HCO SUB2 ET, ACH, AND CH SUB4. THE THERMAL STABILITY AT IS
SIMILAR TO 10 PRIME NEGATIVE3 MM DECREASED IN THE SERIES II GREATER THAN
I GREATER THAN III; HOWEVER THE OVERALL DECOMPN. ACTIVATION ENERGY, AS
DETD. FROM THE CONVERSION VS. TIME GRAPHS, WAS APPROX. THE SAME (50 PLUS
OR MINUS 2 KCAL-MOLE). A COMMON DECOMPN. MECHANISM, INVOLVING FREE
RADICAL DIENE INTERACTIONS, IS PROPOSED FOR ALL 3 POLYETHERS.

UNCLASSIFIED

1/2   025   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--ABSOLUTE EXCITATION CROSS SECTION OF THE K PRIMEPOSITIVE RESONANCE
   STATES IN COLLISIONS WITH ARGON ATOMS -U-
AUTHOR--BOBASHEV, S.V.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT. A 1970, 31(4), 204-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--UV SPECTRUM, ARGON, POTASSIUM, EXCITATION CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0728   STEP NO--NE/0000/70/031/004/0204/0205

CIRC ACCESSION NO--AP0111921
                             UNCLASSIFIED

CIRC ACCESSION NO--AP0111921

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PHOTOIONIZATION CHAMBER WAS
BUILT IN ORDER TO MEASURE ABS. VALUES OF THE SPECTRAL LINES IN THE
EXTREME UV. ABS. VALUES OF THE CROSS SECTIONS FOR THE EXCITATION OF K
PRIMEPOSITIVE RESONANCE LINES AT 600.7, 607.9, AND 612.6 ANGSTROM BY THE
PROCESS K PRIMEPOSITIVE PLUS AR YIELDS K PRIMEPOSITIVE PLUS AR WERE 1.2,
0.8, AND 2.2 (TIMES 10 PRIME NEGATIVE17 CM PRIME2), RESP.
FACILITY: A. F. IOFFE PHYS. TECH. INST., LENINGRAD, USSR.

UNCLASSIFIED

UNCLASSIFIED
TITLE--ABSOLUTE EXCITATION CROSS SECTION OF THE K PRIME POSITIVE RESONANCE   PROCESSING DATE--30OCT70
    STATES IN COLLISIONS WITH ARGON ATOMS -U-
AUTHOR--BOBASHEV, S.V.

CCUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS(NETHERLANDS), VOL. 31A. NO. 4. P. 204-5 (23 FEB.
    1970)
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITATION CROSS SECTION, ARGON, RESONANCE SCATTERING, UV
    SPECTRUM, LINE INTENSITY, PHOTOIONIZATION, IONIZATION CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0504   STEP NO--NE/0000/70/031/004/0204/0205

CIRC ACCESSION NO--AP0111697
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0111697
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO MEASURE ABSOLUTE VALUES OF THE
  INTENSITY OF SPECTRAL LINES IN THE VACUUM ULTRAVIOLET A PHOTOIONIZATION
  CHAMBER OF A NEW DESIGN HAS BEEN CONSTRUCTED.   THE ABSOLUTE VALUES OF
  THE CROSS SECTIONS FOR THE EXCITATION K II RESONANCE LINES HAVE BEEN
  DETERMINED.   FACILITY: ACAD. SCI., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC   621.372.061

BOBIN, V. V.

"On the Possibilities for Optimum Solution of Approximating Frequency Responses"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekh. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 41-46

Abstract: Methods are considered for formalizing initial technical specifications given in the form of frequency responses. The mathematical programming system used enables accounting for conditions of physical realizability of a transfer function, as well as implementing approximation with respect to given quality criteria: minimum error of reproducing initial responses, minimum sensitivity of the resultant circuit to variations in its elements. Bibliography of six titles.

1/1

TITLE--TELOMERIZATION OF VINYL CHLORIDE BY CHLOROFORM AND TRICHLOROACETIC
ACID ESTERS -U-

AUTHOR-(04)-RAZUVAYEV, G.A., BOBINOVA, L.M., ZVEZDIN, V.L., YEGOROCHKIN,
A.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 637-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, VINYL CHLORIDE, CHLOROFORM,
POLYMER, ACETATE, ESTERIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1903   STEP NO--UR/0062/70/000/003/0637/0640

CIRC ACCESSION NO--AP0123687
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0123687
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TELOMERIZATION OF VINYL CHLORIDE
  WAS RUN IN THE PRESENCE OF FECL SUB2.4H SUB2 O IN AN AUTOCLAVE WITH CHCL
  SUB3 OR ET OR ISO-PR ESTERS OF CCL SUB3 CO SUB2 H. FRACTIONAL DISTN.
  YIELDED THE TELOMERS CHCL SUB2 CH SUB2 CHCL SUB2, CHCL SUB2 CH SUB2
  CHCLCH SUB2 CHCL SUB2, AND CHCL SUB2 CH SUB2 CHCLCH SUB2 CHCLCH SUB2
  CHCL SUB2 WHICH HAD PHYS. CONSTS. (B., N PRIME2O SUBD, D PRIME2O,
  RESP.): B SUB2O 57-8DEGREES, 1.4820, 1.4555; B SUB1 83-4DEGREES,
  1.5030, 1.4585; B SUB1 131-2DEGREES, 1.5139, 1.4524. THE ESTER TELOMERS
  ISOLATED INCLUDED: (FORMULA SHOWN ON MICROFICHE). THE REACTION RUN
  WITH CH SUB2:CHCL AND CCL SUB3 CO SUB2 ET IN ISO-PROH GAVE PRODUCTS OF
  TELOMERIZATION COMPLICATED BY TRANSESTERIFICATION.   FACILITY:
  LAB. STABIL. POLIM., GORKI, USSR.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70

TITLE--REACTION OF DIMETHYL SULFOXIDE WITH PHENOL IN THE PRESENCE OF
FORMAMIDE AND DIMETHYLFORMAMIDE -U-

AUTHOR-(02)-CHESNOKOV, V.F., BOBKHOVKIN, I.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 733-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SULFUR OXIDE, PHENOL, AMIDE, FORMIC ACID, ORGANIC COMPLEX
COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0865   STEP NO--UR/0079/70/040/004/0733/0736

CIRC ACCESSION NO--AP0134594

UNCLASSIFIED

CIRC ACCESSION NO--AP0134594

ABSTRACT/EXTRACT--(U) GP-0-, ABSTRACT. PHASE DIAGRAMS ARE PRESENTED FOR SYSTEMS OF ME SUB2 SO-ME SUB2 NOCH-PHOH, ME SUB2 SO-HCONH SUB2-PHOH, WITH THE LATTER CONTG. A COMPLEX OF THE 3 COMPONENTS. THE 1ST SYSTEM HAS FOLLOWING TERNARY INVARIANT POINTS: NEGATIVE 82DEGREES AT 18 MOLE PERCENT PHOH AND 11 MOLE PERCENT ME SUB2 SO; NEGATIVE 60DEGREES AT 65PERCENT AND 5PERCENT, RESP.; NEGATIVE 48DEGREES AT 47PERCENT AND 19PERCENT, AND NEGATIVE 63DEGREES AT 35PERCENT AND 28PERCENT, RESP. THE 2ND SYSTEM HAS TERNARY INVARIANT POINTS AS FOLLOWS: NEGATIVE 19DEGREES AT 76 MOLE PERCENT PHOH AND 19 MOLE PERCENT ME SUB2 SO; NEGATIVE 11DEGREES AT 10PERCENT AND 9PERCENT; NEGATIVE 50DEGREES AT 25PERCENT AND 51PERCENT; NEGATIVE 33DEGREES AT 34PERCENT AND 34PERCENT; NEGATIVE 32DEGREES AT 43PERCENT AND 34PERCENT; NEGATIVE 36DEGREES AT 37PERCENT AND 36PERCENT; AND NEGATIVE 43DEGREES AT 3PERCENT AND 31PERCENT, RESP. THE STABILITY OF BINARY COMPLEXES OF ME SUB2 SO WITH PHOH IN THESE TERNARY SYSTEMS INCREASES WHEN HCONH SUB2 IS REPLACED BY HCONME SUB2, OWING TO STRUCTURAL CHANGE RESULTING.   FACILITY: ARKHANGEL.
LESOTEKH. INST., ARKHANGEL, USSR.

USSR

BOBKOLSKIY, V. N., DERGUNOVA, V. S., IVANOVA, T. N., KOSTIKOV, V. I.,
LEVIN, V. Ya., TARABANOV, A. S.

"Contact Interaction of Melts in the System Silicon-Niobium with Carbon
Materials"

Translation: The wetting of pyrographite (I), vitreous carbon (II) and
graphite (III) by melts in the silicon-niobium system, produced by double
arc remelting in purified argon is studied. The final contact wetting angle
on porous (III) is equal to zero, on pore-free (I) and (II) it is greater than
zero. It is established that the chemical activity of these materials in re-
lationship to melts in the system Si-Nb increases in the sequence: I, II,
III.

1/1

UNCLASSIFIED   PROCESSING DATE--03JUL70

TITLE--AUTO ION MICROSCOPY OF DEFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO
ALPHA PARTICLE BOMBARDMENT -U-

AUTHOR--SUVOROV, A.L., KUKAVADZE, G.M., BOBKOV, A.F.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 1, PP 85-87

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL STRUCTURE, TUNGSTEN, PARTICLE BOMBARDMENT,
ALPHA PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1973/1072   STEP NO--UR/0056/70/058/001/0085/0087

CIRC ACCESSION NO--AP0038031

UNCLASSIFIED

AUTO-ION MICROSCOPY OF DEFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO α-PARTICLE BOMBARDMENT

A. L. Suvorov, G. M. Kukavadze, A. F. Bobkov

Tungsten crystal imperfections due to bombardment with α particles of various energies (from 12.7 to 23.4 MeV) are investigated by means of a helium ion projector operating at 78° K. The integral irradiation doses varied between $1.7 \cdot 10^{13}$ and $1.6 \cdot 10^{16}$ particles /cm². Four main types of imperfections were observed in the irradiated samples: single vacancies, atoms displaced to interstitial positions, vacancy clusters of ~ 10 Å diameter and small complexes of displaced atoms on the surface.

REEL/FRAME
19731072

LASSIFIED   PROCESSING DATE--03JUL70

TITLE--AUTO ICN PIC: IFECTS IN TUNGSTEN SINGLE CRYSTALS DUE TO
   ALPHA PARTICLE BCMEARDMENT--U-
AUTHOR--SUVOROV, A.L., KUKAVADZE, G.P., BCBKOV, A.F.

CCUNTRY CF INFC--USSR

SCURCE--ZHURNAL EKSPERIMENTAL'NCY I TECRETICHESKGY FIZIKI, 1970, VCL 58,
   NR 1, PP 85-87
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TCPIC TAGS--SINGLE CRYSTAL STRUCTURE, TUNGSTEN, PARTICLE BCMBARDMENT,
   ALPHA PARTICLE

CONTROL MARKING--NC RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1973/1072   STEP NC--UR/CC56/70/058/001/CC85/C087

CIRC ACCESSICN NC--AFCC38031
                    UNCLASSIFIED

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A. L. Surorov, G. M. Kukavadze, A. F. Bobkov

Tungsten crystal imperfections due to bombardment with α particles of various energies (from 12.7 to 23.4 MeV) are investigated by means of a helium ion projector operating at 78° K. The integral irradiation doses varied between $1.7 \cdot 10^{15}$ and $1.6 \cdot 10^{16}$ particles /cm². Four main types of imperfections were observed in the irradiated samples: single vacancies, atoms displaced to interstitial positions, vacancy clusters of ~ 10 Å diameter and small complexes of displaced atom on the surface.

REEL/FRAME
19731072

Acc. Nr: ──── ── Abstracting Service;   Ref. Code:
AP0047410_ GEOPHYSICAL ABST.   U R0065

91859n Dependence on chemical structure of the lower con-
centration limit for the propagation of an alkane flame. Korol'-
chenko, A. Ya.; Bobkov, A. S.; Flid. R. M. (USSR). Khim.
Tekhnol. Topl. Masel 1970, 15(1), 21-2 (Russ). The lower
concn. limit C_l of an alkane C_nH_{2n+2} was calcd. by the equation

$$C_l = \sum_{i < j = 1}^{4} n_{ij}Q_{ij},$$

where i,j are the primary, secondary, etc. C
atoms, Q_{ij} the combustion heat related to the bonds $C_i - C_j$.
Q_{ij} for the calcn. was obtained according to the structural formula
of the alkane from literature data. Thus, C_l of 2,2,3-trimethyl-
butane, whose no. of n_{ij} bonds $C_i - C_j$ were $n_{13} = 2$, $n_{14} = 3$,
$n_{34} = 1$, the primary, tertiary and quaternary C being marked
by the indexes 1, 3, and 4, resp., was $C_l = 1180/(2 \times 228.48 +
3 \times 210.01 + 69.40) = 1.02$ vol. %. The higher difference be-
tween the calcd. and exptl. data for 9 alkanes was 0.08 vol. %.
The equation reflected the isomeric effect. C_l decreased with the
increase of the mol. wt. but, for the high homologs, the effect
of the mol. wt. was lower. The alkane with branched Me and
Et groups had C_l similar to that of the normal-structure alkanes
due to the insignificant difference in their combustion heat.
Comparative calcd. and exptl. data are tabulated.   GGJR

REEL/FRAME
19790936

BUKOV, V. A., BOBKOV, I. G., and VINOGRADOV, V. I., Laboratory of Pathological
Physiology and Experimental Surgery, Institute of Clinical and Experimental
Surgery, Ministry of Health USSR

"Determination of Brain Temperature During Cooling of the Head"

Abstract: Clinical application of craniocerebral hypothermia requires a reliable,
simple, and precise method of indirect determination of the degree of cooling of
the brain. Numerous experimental and clinical studies using simultaneous measure-
ments have demonstrated that the temperature in the auditory canal wall near the
tympanic membrane registers the temperature of the basal portion of the brain
with a precision of ± 0.4 degrees. The temperature of the cerebral cortex may
simultaneously be 5 degrees (or more) lower, depending on the depth of surface
hypothermia. Since this method is simple and practically nontraumatic, it can
be safely used in clinical practice.

1/1

1/2   031   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--DETERMINATION OF THE BRAIN TEMPERATURE IN CRANIOCEREBRAL
   HYPOTHERMIA -U-
AUTHOR-(03)-BUKOV, V.A., BOBKOV, I.G., VINOGRADOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP
   113-114
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREBRUM, HYPOTHERMIA, CLINICAL MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0577   STEP NO--UR/0589/70/104/005/0113/0114

CIRC ACCESSION NO--AP0108792
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0108792   UNCLASSIFIED   PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CLINICAL APPLICATION OF CRANIOCEREBRAL HYPOTHERMIA IT IS NECESSARY TO HAVE A RELIABLY SIMPLE AND PRECISE METHOD OF INDIRECT DETERMINATION OF THE DEGREE OF THE BRAIN COOLING. AS A RESULT OF EXPERIMENTAL AND CLINICAL STUDIES IT HAS BEEN DEMONSTRATED THAT TEMPERATURE OF THE AUDITORY CANAL WALL NEAR THE TYMPANIC MEMBRANE REFLECTS TEMPERATURE OF THE BASAL BRAIN PORTION WITH A PRECISION UP TO PLUS OR MINUS 0.4DEGREES. WHEREAS TEMPERATURE OF THE CEREBRAL CORTEX IS 5DEGREES AND MORE LOWER DEPENDING ON THE DEPTH OF HYPOTHERMIA. SINCE THIS METHOD IS SILMPLE AND NEARLY ATRAUMATIC, IT COULD BE WIDELY USED IN CLINICAL PRACTICE.   FACILITY: LABORATORII PATOFIZIOLOGII I EKSPERIMENTAL'NOY KHIRURGII INSTITUTA KLINICHESKOY I EKSPERIMENTAL'NOY KHIRURGII MINISTERSTVA ZDRAVOOKHRANENIYA SSSR.

UNCLASSIFIED

UDC   548.4

USSR

SVODOVA, A. V. and BORKOV, ~. V.

"Appearance of Dislocations on the (100) Plane"

Nauch. tr. N.-i. i proyektn. in-t redkomet. prom-sti (Scientific Transactions of the Scientific Research and Design Institute of the Rare Metal Industry) 1971, 33, pp 44-47 (from Zh-Fisika, No. 9, 1971, Abstract No. 9B457)

Translation: The action of etchers with a predominate content of dissolving components and copper ions on the (100) plane of the monocrystals is investigated. The assumption is made that the copper deposited in the loci of the defects accelerates their solution. An increase in the dislocation density at the (100) plane compared with the other crystalline planes was observed.
Resume

1/1

USSR   UDC   621.396.6-181.48

MURZIN, YU. M., BOBKOV, N. YE., and BACHMANOV, V. A.

" Some Problems Associated With the Control and Search for Failures in Integrated
Circuits"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collection of
Scientific Works on Problems in Microelectronics. M oscow Institute of Electronics
Technology), 1972, vyp. 10, pp 8-13 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract
No 11 V222)

Translation: A general evaluation is given of methods for the control of micro-
circuits. A detailed study is made of the theoretical basis of the failure search
method based on control results. Probability of method error is evaluated. Ori-
ginal article: one illustration and two bibliographic entries.   N.S.

1/1

1/2   054   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--DIFFUSION OF HEAT IN TURBULENT FLUID FLOWS WITH VARIOUS PRANDTL
   NUMBERS -U-
AUTHOR-(02)-BOBKOV, V.P., IBRAGIMOV, M.KH.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZIKA VYSOKIKH TEMPERATUR, VOL. 8, JAN.-FEB. 1970, P.
   106-110
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--TURBULENT FLOW, PRANDTL NUMBER, THERMAL CONVECTION, THERMAL
   DIFFUSION, BOUNDARY LAYER HEAT TRANSFER, AIR FLOW, FLOW ANALYSIS, WATER,
   TWO PHASE FLOW, METAL TUBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0385   STEP NO--UR/0294/70/008/000/0106/0110

CIRC ACCESSION NO--AP0111578
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0111578
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   ANALYSIS OF THE APPLICABILITY OF
   THE THEORY OF TURBULENT DIFFUSION AND STATISTICAL CHARACTERISTICS OF A
   TURBULENT FLUID FLOW IN CALCULATING THE COEFFICIENTS OF TURBULENT HEAT
   DIFFUSION IN A FLOW OF AIR AND WATER IN A TUBE.   FORMULAS ARE PROPOSED
   FOR CALCULATING THESE COEFFICIENTS OVER THE ENTIRE CROSS SECTION OF SUCH
   FLOWS AT PRANDTL NUMBERS FROM 0.01 TO 10 AND REYNOLDS NUMBERS FROM 10K
   TO M.   THE EXTRAPOLATION MODEL PROPOSED FOR EXTENDING THE DIFFUSION
   METHOD INTO THE BOUNDARY LAYER OF SUCH FLOWS IS SHOWN TO AGREE WITH
   AVAILABLE EXPERIMENTAL RESULTS.   FACILITY: GOSUDARSTVENNYI
   KOMITET PO ISPOL'ZOVANIIU ATOMNOI ENERGII, FIZIKO ENERGETICHESKII
   INSTITUT, OBNINSK, USSR.

UNCLASSIFIED

USSR

KOVAL', A. D., VYaGIN, G. I., BOBKOV, V. V., KLIMOVSKIY, Yu. A., STRAL'ChENKO, S. S., and FOGEL', Ya. M., Khar'kov State University imeni A. M. Gor'kiy

"On the Question of the Difference in Composition of Charged and Neutral Particles Knocked out of Gallium Arsenide by a Beam of Ar^+ Ions"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 43, No 8, Aug 73, pp 1753 - 1754

Abstract: A previous study in which Ar^+ particles had an energy of 2 kev showed that the positively charged secondary particles were primarily Ga^+_n ions and complexes, with As_n^+ particles being 2 - 3 orders of magnitude less frequent, while the neutral secondary particles were all arsenic atoms or complexes. Two types of gallium arsenide crystals were used as targets, (100) and (111), with no discernible difference in the distribution of secondary particles ejected between the two types. It is theorized that the difference in distribution is related to processes between the departing secondary particles and the surface of the solid and that these processes are determined by the velocity of the departing particles and the relative arrangement of energy zones of the solid body and excited levels of the particles.

The present work extends this investigation, using a beam of Ar^+ particles at 25 kev. The spectrum of the emitted particles in the visible light range was recorded. It consisted entirely of two resonance lines of GaI at 4172 and 4033 angstroms. These were found to be produced by Ga particles at energies on the

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USSR

order of 2 - 3 kev. This is understandable, since the resonance level at 3.1 ev of the Ga atom, the transition from which to the base level produces fast excited Ga particles, is in resonance with a zone of free conductivity levels of the GaAs monocrystal, leading to a high probability of resonance ionization, while a significant portion of the levels of the As atom is in resonance with a forbidden zone of the crystal, making resonance ionization unlikely for these atoms. The neutral, emitted As atoms radiate in the vacuum ultraviolet and were not recorded in the experimental spectrum. Resonance ionization can occur for As atoms at an energy level of 7.6 ev, but only a small percentage reaches this level.

2/2

BoBKoV, V.V

SP/25 69068
6-73

XV-5. APPLICATION OF THE METHOD OF SECONDARY ION-ION EMISSION TO STUDY THE SURFACE OF AIIIBV SEMICONDUCTOR COMPOUNDS

[Article by V. V. Bobkov, A. G. Koval', Yu. A. Kileovskiy, Y. P. Lejedev, S. S. Strel'chenko, and V. V. Shubina, Khar'kov-Kaluga; Novosibirsk, Ill Simpozium po protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Kustakai, 12-17 June 1972, p 216]

The use of the method of secondary ion-ion emission is discussed in this paper to study the surface of AIIIBV semiconductor compounds. This method was used successfully previously [1] to study the surface reactions on the atomic level.

This research performed demonstrated that the mass spectrum of the secondary gallium arsenide ions contains two groups of particles: 1) those knocked out of the adsorbed layer and 2) those knocked out of the gallium arsenide lattice.

In the first group ions of the $Ga_mO_n^+$, Ga_mOH^+ and Ga_mAsO^+ type were observed the origin of which is related to the surface contamination. The study of the temperature dependence of these ions demonstrated that the gallium arsenide surface is cleaned in a vacuum of 10^{-7} mm Hg at a temperature of 500° C.

In the second group of particles, ions of the $Ga_mAs_n^+$ type were observed. In this paper there is a discussion of possible mechanisms of their occurrence connected with the characteristic features of the chemical bond in gallium arsenide.

A study was made of certain aspects of the application of the method of secondary ion-ion emission to the study of the processes of the formation of nucleating centers for growth of heteroepitaxial layers.

BIBLIOGRAPHY

1. Ya. M. Fogel', UFN (Progress in the Physical Sciences), No 91, 1075, 1967.

- 221 -

USSR   UDC 534.6

BOBKOV, Yu. A., ZVEREV, V. A., PAVLENKO, A. M., and
SHARONOV, G. A., Gor'kiy State University

"Method of Amplitude and Phase Registration of Ultrasonic Waves
Based on Double Interaction of Light With Sound"

Abstract : A method of visualization of sound fields in a liquid
based on consecutive interaction of light with two travelling
acoustic waves is discussed. By this method, both, amplitude and
field phase are recorded and, in contrast to other methods, sound
field visualizations not requiring high voltages and distinguished
by simplicity of the used equipment can be realized. Visualizati-
on experiments of sound fields were carried out by translucence
of ultrasonic waves by coherent light according to an illustrated
schema. Examples of photographed visualized sound fields show
that the discussed method makes possible to register the ultra-
sonic bundle itself and also the fine structure of the wave field.
The method can be applied not only for acoustic holography purpo-
ses but also for solving other problems of acoustics, e. g., in-
vestigation of characteristics of ultrasound emitters. Three il-
lustr., nine formulas, five biblio. refs.
1/1
                            - 133 -

USSR

UDC 621.317.7.087

BOBKOV, Yu. N., and SEMENYuK, A. L.

"Automatic, Self-Recording Measuring Instruments with Digital Output"

Translation: The article examines the principles of action, circuits, and achievements of automatic, self-recording measuring instruments using stepping motors, in which the information about the measured value is represented in both analog and digital form. The results of experimental studies of an automatic, unbalanced bridge with stepping motors of various types are given. Three illustrations, eight bibliographic citations.

1/1

USSR   .   UDC: 681.2:62-526.001.24

BOBKOV, Yu. N.

"Particulars of Calculating Electromechanical Instrument Tracking Systems
With Velocity Feedback Connections"

Translation: The author examines and compares the phase plane method and the
time method for analytical construction of the transfer function of second
order tracking systems with saturation assuming effective velocity feedback.
The advantages of the time method of constructing such a transfer function
are demonstrated, and recommendations are given on recurrent determination
of the coordinates of transfer function points which correspond to a tran-
sition from the linear zone of operation to the saturation zone and back.
Four illustrations. Resumé.

1/1

USSR   UDC: 621.317.373(088.8)

MOLODOV, V. D., BOBKOV, Yu. N.

"A Method of Measuring Phase Displacement"

USSR Author's Certificate No 256867, filed 26 Oct 67, published 16 Apr 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A289 P)

Translation: Methods are known for measuring phase difference by multiplying
and integrating the input signals. These methods have comparatively low
interference resistance and precision, which may be improved by the proposed
method. According to the new method, the values of input signals are syn-
chronously determined at equal time intervals and raised to the second power,
then added in the course of a period. In addition, the sums of the squares
of the instantaneous values are multiplied at the end of the period, the
square root of this product is taken and divided by the products of the
instantaneous values of the input signals. The value of the unknown phase
difference is determined from the result of this last operation (division).
E. L.

1/1

BOBKOVA, N. N.

EFFECT OF 120-DAY HYPOKINESIA ON HUMAN CHROMOSOMES

Article by N. N. Bobkova and L. P. Grinio; Moscow, Kosmicheskaya Biologiya i Meditsiny (Current Problems In Space Biology and Medicine), Russian, 1971, pp 28-29

In theoretical and practical respects it is of interest to study both individual and joint spaceflight factors as they affect different human physiological systems, especially the chromosomes.

All the data in the literature on the genetic influence of isolated spaceflight factors have been obtained using different plants and animals. Among the investigations made on man one can mention only a study made by American scientists on a chromosomal analysis of persons exposed for a period of 15 days in an oxygen-helium atmosphere at a pressure of 300 mm Hg (I. E. Prince, L. H. Mori, et al., 1968).

Accordingly, due to the limited amount of data obtained on man it is of interest to make further investigations in this direction.

During prolonged hypokinesia man exhibits a number of functional changes expressed in hemodynamic shifts, changes in the physicochemical properties of the blood, impairments in mineral and protein metabolism, etc. Meanwhile, it is unknown whether hypokinesia and the above-mentioned changes in different physiologic systems can exert an influence on the process of cell division and cause a cytogenetic effect in man.

The objective of our study was an investigation of the influence of 120-day hypokinesia on human chromosomes in vivo.

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Mechanical Properties

KOPETSKIY, CH. V., ORZHEKHOVSKIY, V. L., PASHKOVSKIY, A. I., AMOSOV, V. M., BOBKOVA, N. N., and PAVLOVA, YE. I., Moscow

"Influence of Carbon on the Mechanical Properties and Structure of Molybdenum Crystals"

Abstract: The structure and properties of molybdenum crystals with orientation of the $<110>$ $<100>$ growth axes, containing 0.02 and 0.03 wt. % carbon, are studied in the 77-293°K temperature interval. A decrease in the carbon content within these limits causes a sharp increase in plasticity of the crystals, particularly at low temperatures, a decrease in the yield point, and a decrease in the dependence of yield point on test temperature, as well as more even distribution of dislocations and superior crystal structure. The strong dependence of yield point, relative elongation, relative reduction in area, and nature of rupture of crystals on the orientation of the rupture axis is confirmed.
1/1

Mechanical Properties

KOPETSKIY, CH. V., ORZHEKHOVSKIY, V. L., PASHKOVSKIY, A. I.,
AMOSOV, V. M., BOBKOVA, N. N., and PAVLOVA, YE. I., Moscow

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limits causes a sharp increase in plasticity of the crystals,
particularly at low temperatures, a decrease in the yield point,
and a decrease in the dependence of yield point on test tempera-
ture, as well as more even distribution of dislocations and
superior crystal structure. The strong dependence of yield
point, relative elongation, relative reduction in area, and
nature of rupture of crystals on the orientation of the rupture
axis is confirmed.
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space physiology

CYTOGENETIC INVESTIGATIONS IN RELATION TO MANNED SPACE FLIGHT

UDC 612.6.05-06;629.78

Abstract: No increase in chromosomal aberrations was found in the blood of test subjects during a 120-day bedrest experiment. No significant changes in the chromosomal apparatus were detected in cytogenetic examinations of the cosmonaut G. T. Beregovoy. These findings indicate that manned space flights made along the trajectories and in radiation environments involved up to this time are genetically safe.

A study of the effect of spaceflight factors on different biolog-
ical objects was already inflicted in experiments in balloons and bal-
listic missiles (1935-1966), but no reliable cytological and genetic
changes could be detected. Rather contradictory data were obtained in
an investigation of plants and animals aboard artificial earth satellites
and spaceships.

A series of experiments on plants revealed a cytogenetic effect
caused by spaceflight factors. For example, for wheat and pea seeds
V. V. Khvostova (1962), after a series of space flights, discovered a
statistically reliable increase in chromosomal rearrangements. N. L.
Delone, et al. (1963a,b, 1964) observed an impairment of the mitosis
process in the microspores of Tradescantia. Ya. L. Glembotskiy, et al.
(1962) discovered that some strains of actinomycetes are sensitive to
flight factors. However, studies by B. N. Sidorov and N. N. Sokolov
(1961) failed to detect changes in the frequency of chromosomal rear-
rangements in Allium fistolosum and Nigella damascena. According to
N. N. Zhukov-Verezhnikov, et al. (1962, 1965), the frequency of bio-
chemical mutations in E. coli also did not change after flights on an
artificial earth satellite. In a number of experiments on Drosophila
Ya. L. Glembotskiy and G. P. Parfenov (1962), Ya. L. Glembotskiy, et al.

USSR

UDC 669.168:621.365

BOBKOVA, O. S., Central Scientific Research Institute of Ferrous Metallurgy

"Use of Silicon for the Production of Ferrochrome By the Silicothermal Method"

Moscow, Stal', No 12, 1972, pp 1094-1096

Abstract: The production of ferrochrome in a ladle, as opposed to its production in a furnace, is characterized by a higher reduction temperature of chromium and iron and higher utilization of silicon (almost 100%). The suggested method includes the mixing of the ore-lime melt with silico-chrome in an open ladle during which chromium and iron are reduced from the melt oxides in which the ore chromium spinel is already completely disintegrated in the course of the formation of new bonds between ore oxides and calcium oxides. Bonds between silicon, chromium, and iron in the liquid silicochrome are considerably weaker than in iron and chromium silicides in solid silicochrome. The interaction rate between the ore-lime melt with liquid silicochrome is considerably higher compared with the solid granulated silicochrome, and more heat is generated per unit time. All these advantages make the suggested method best suited for the production of ferrochrome with less than 0.03% carbon. The utilization of silicon by mixing solid components amounted to only 85%. The better utilization of silicon during mixing of melted components

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USSR"

BOBKOVA, O. S., Stal', No 12, 1972, pp 1094-1096

is attributed to the higher reduction temperature of chromium and iron in the melt, the presence of a lesser number of oxide forms, and an almost complete absence of oxygen diffusion through the slag phase

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USSR

MUSATOV, A. S., and BOBKOVA, O. S.

"Thermal Losses in the Silicothermal Method of Production of Ferrochrome Outside the Furnace"

UDC 669.25:536.37

Translation: On the basis of theoretical calculation, a quantitative estimate is given for the primary sources of thermal losses in the process of production of carbon-free ferrochrome by the method of mixing of liquid melts. The heat losses involved in the primary technological operations are determined. It is demonstrated that the greatest heat losses in the technology of production of carbon-free ferrochrome, with average values of other parameters, are produced by waiting in ladles of ore-lime melt after it is extracted from the furnace.

The data presented allow calculation of the quantity of solid additives consisting of ore-lime mixture or ferrochrome wastes. 1 table; 6 biblio. refs.

1/1

USSR

UDC 547.794:543.422

SHVETSOV-SHILOVSKIY, N. I., IGNATOVA, N. P., BOBKOVA, R. G., MANYUKHINA, V. YA.,
and MEL'NIKOV, N. N.

"Some Derivatives of Phosphadiazoles-1,2,3"

Leningrad, Zhurnal Obshchey Khimii, Vol 42 (104), No 9, Sep 72, pp 1939-1941

Abstract: Continuing the study of the reaction of phosphorus trichloride
with hydrazones, β-Cyanoethylhydrazones of acetone, acetophenone and p-
bromoacetophenone were reacted with PCl_3, yielding derivatives of phosphadi-
azole-1,2,3. Benzoyl- and carbobutoxyhydrazones of acetone reacted with PCl_3
to yield 2-substituted phosphadiazoles. Adding aniline to 2-acetyl-4-
methylphosphadiazole along the -P:C bond gave 1-anilino-2-acetyl-4-methyl-
phosphadiazole-1,2,3. Analogously starting with 2-acetyl-4-methyl-1-chloro-
1,5-dihydrophosphadiazole and 8-hydroxyquinoline, 2-acetyl-4-methyl-1-(8-
hydroxyquinolinyl)phosphadiazole-1,2,3 was obtained.

1/1

USSR   UDC 543.51:547.1'118

KOSTYANOVSKIY, R. G., PLEKHANOV, V. G., IGNATOVA, N. P., BORKOVA, R. G., and
SHVETSOV-SHILOVSKIY, N. I., Institute of Chemical Physics, Academy of Sciences
USSR

"Mass Spectra of 1,2,3-Phosphadiazoles"

Abstract: The authors studied the electron impact-induced decay of a new class
of compounds with a 2-coordinate phosphorus atom. Mass spectral data confirm
the aromatic character of 1,2,3-phosphadiazoles.

1/1

USSR

ZHARIKOVA, G. G., MARKELOVA, S. I., BOBKOVA, T. S., LANDAU, N. S., SMOLINA, G. S., and SILAYEV, A. B., Moscow State University imeni M. V. Lomonosov, Moscow

"Destruction of Lacquer and Paint Coatings by Bacteria and Actinomycetes"

Abstract: From the soil of various regions of the USSR, the following strains of bacteria and Actinomycetes were isolated which were found to cause destruction of surface coatings: Bacillus sphaericus var. 2P, Bac. cohaerens var. 4P, Bac. subtilis var. 1B, Flavobacterium acetylicum var. 7P, Mycobacterium sp. var. 1P, Propionibacterium pentosaceum var. 4B, Micrococcus aurantiacus var. 14C, Micrococcus aurantiacus var. 16 C, Actinomyces globisporus var. 9B, Actinomyces globisporus var. 10C, Actinomyces sp. Var. 10B. The cultural, morphological, and biochemical characteristics of the eight bacterial strains were determined. The behavior of surface coatings based on epoxy resin, alkyd resin, teflon, pentaphthalic resin, PVC, and organosilicon resin with respect to the 11 microorganisms isolated was determined in tests in which a sample of the surface coating was kept for 1 yr in contact with
1/2

USSR

ZHARIKOVA, G. G., et al., Prikladnaya Biokhimiya i Mikrobiologiya, Vol 7,
No 2, Mar-Apr 71, pp 236-242

a culture medium containing (in g/l.) $CaCO_3$ 3, $MgSO_4$ 0.5, KH_2PO_4 1, KCl 0.2,
agar 20 (pH 7.0-7.5). The only source of C for the microorganism was the
coating. The samples were examined every month. The behavior of alkyd resin,
epoxy resin, and teflon coatings with respect to mixtures of some of the
microorganisms was determined in similar tests. The results of the tests
are tabulated. The bacteria and actinomucetes isolated can be used for
determining whether or not a surface coating is resistant to the action of
microorganisms.

2/2

- 21 -

TITLE--INFRARED LIGHT REFLECTION FROM SILICON WITH A HIGH CONCENTRATION OF
   NONEQUILIBRIUM CARRIERS -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VARIATION WAS INVESTIGATED OF THE
    REFLECTICN COEFF. R FROM UNDOPED SI AT ROOM TEMP. AT 10.6 MU AS A
    FUNCTION CF THE LEVEL OF EXCITATION WITH A RUBY LASER. WITH INCREASED
    LEVEL OF EXCITATION A DECREASE IN R WAS OBSD. FROM 30 TO 19PERCENT AND
    THEN AN INCREASE TO 50PERCENT. DATA ON THE DEPTH OF THE MIN. ON THE
    REFLECTION CURVE ALLOWED CONCLUDING ABOUT THE PREVAILING ELECTRON HOLE
    SCATTERING. FROM THE VALUE OF R IN THE MIN. THE RELAXATION TIME WAS
    EVALUATED; IT IS 10 NEGATIVE PRIME14 SEC. CONCN. WAS DETD. OF NONEQUIL.
    CARRIER CORRESPONDING TO THE MIN. ON THE REFLECTION CURVE DELTA N EQUALS
    DELTA P EQUALS 2 TIMES 10 PRIME19-CM PRIME3.   FACILITY: FIZ. INST.
    IM. LEBEDEVA, MOSCOW, USSR.

USSR

UDC 547.26'118.07

BABYAK, A. G., YURZHENKO, T. I., and BOBNARCHUK, N. D., L'vov Polytechnical Institute and the Institute of Organic Chemistry of the Academy of Sciences of the Ukrainian SSR

"Synthesis and Some Reactions of Substituted Phenyldisert.-butylperoxy-phosphazoethylenes"

Abstract: Substituted phenylditert.-butylperoxyphosphazoethylenes are synthesized by the reaction of the sodium salt of tert.-butyl hydroperoxide with substituted phenyldichlorophosphazoethylenes in an ether solution in the presence of anhydrous sodium sulfite.

$$\begin{matrix} R' \\ R'' \end{matrix}\!\!>\!\!C\!=\!C\!-\!N\!=\!P\overset{\displaystyle C_6H_5}{\underset{\displaystyle Cl}{<\!\!\!\!-Cl}} \;+\; 2NaOOC(CH_3)_3 \;\longrightarrow\; 2NaCl\;+$$

$$+\; \begin{matrix} R' \\ R'' \end{matrix}\!\!>\!\!C\!=\!C\!-\!N\!=\!P\overset{\displaystyle C_6H_5}{\underset{\displaystyle OOC(CH_3)_3}{<\!\!\!\!-OOC(CH_3)_3}} \qquad\qquad (1)$$
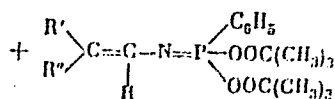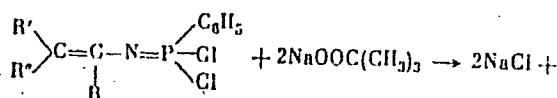
$R = CCl_3, CF_3;\; R' = AlkOCO;\; R'' = AlkOCO, CN, AlkCO.$

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BABYAK, A. G., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72,
pp 535-538

The resultant oils do not distill in a vacuum and are readily soluble in
ether, benzene, acetone and chloroform, poorly soluble in petroleum ether.
When treated with an equimolar quantity of water in a neutral medium,
substituted phenylditert.-butylperoxyphosphazoethylenes hydrolyze yielding
tert.-butyl peresters of substituted ethenylamidophenylphosphonic acids
and tert.-butylhydroperoxides.

$$\begin{array}{c} R' \\ \diagdown \\ R'' \diagup \end{array} C=C-N=P \begin{array}{c} \diagup C_6H_5 \\ -OOC(CH_3)_3 \\ \diagdown OOC(CH_3)_3 \end{array} + HOH \longrightarrow$$

$$\longrightarrow \begin{array}{c} R' \\ \diagdown \\ R'' \diagup \end{array} C=C-NH-P \begin{array}{c} \diagup C_6H_5 \\ \diagdown OOC(CH_3)_3 \\ \| \\ O \end{array} + (CH_3)_3COOH \qquad (2)$$

$R' = AlkOCO;$ $R'' = AlkOCO,$ $CH_3CO,$ $CN;$ $R = CCl_3,$ $CF_3.$
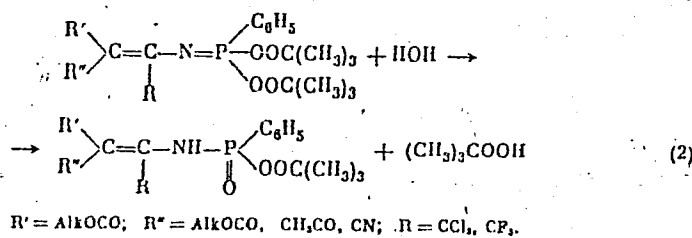
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BABYAK, A. G., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 535-338

The peresters are thick, colored oils which are readily soluble in acetone and chloroform, moderately soluble in ether and benzene, and poorly soluble in water. Treatment of substituted phenylditert.-butylperoxyphosphazo-ethylenes with an equimolar quantity of glacial acetic acid produces tert.--butyl peresters of substituted ethenylamidophenylphosphonic acids and tert.-butylperacetate.

$$\begin{array}{c} R' \\ R'' \end{array} C{=}C{-}N{=}P \begin{array}{c} C_6H_5 \\ OOC(CH_3)_3 \\ OOC(CH_3)_3 \end{array} + CH_3COOH \longrightarrow CH_3{-}C \begin{array}{c} O \\ OOC(CH_3)_3 \end{array} +$$

$$+ \begin{array}{c} R' \\ R'' \end{array} C{=}C{-}NH{-}P \begin{array}{c} C_6H_5 \\ O \\ OOC(CH_3)_3 \end{array} \qquad (3)$$

$$R = CCl_3, CF_3; \quad R' = R'' = AlkOCO.$$

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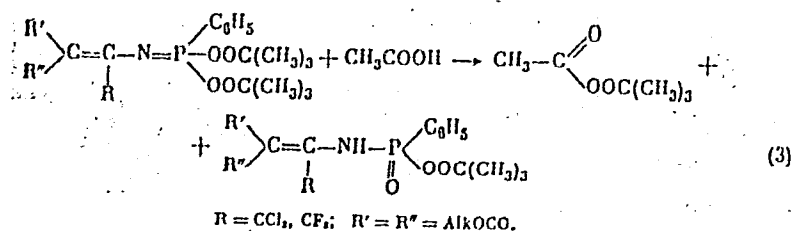
USSR

DORNEY, MATVEY PETROVICH

"Generation Of Random Signals"

Abstract: In the book the principles of construction are considered of random
signal generators which possess specified characteristics. Practical circuits
for the generators are presented, and the basis is given for the choice of para-
meters. Together with random signals, the so-called pseudorandom signals are
also considered in the book. The book is intended for specialists in radio
engineering and automatics who are occupied with an experimental investigation
of the noise immunity and statistical dynamics of various systems.

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"Energiya," 1971. 2nd ed., revised and enlarged.   240 pp ill., 71 ref. 83 k.

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